

## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: Wideman et al.		)		
Applicat		)	Art Unit:	1773
Filed:	March 3, 2004	) )	Confirmation No.: 3	
For:	Tie-layer materilas, articles and Methods for Making and Using same	)	Examiner:	Nakarani, D.

Mail Stop Amendment Commissioner for Patents P.O. Box 1450 Alexandria, VA 22313-1450

Sir:

## RESPONSE UNDER 37 CFR §1.111

## Dear Sir:

This Response is being filed in response to the outstanding Office Action, mailed May 16, 2006 in connection with the above-identified application. Applicants submit the following remarks in this Response. A Submission of Formal Drawings accompanies this Response. If any petition for extension of time is required, Applicants hereby petition for the same, and authorize payment of accompanying fee to be charged to the deposit account recited below.

## In the claims:

1. (Canceled) A composite article comprising a polyolefin layer, a tie-layer, and a non-polyolefin, wherein said tie-layer comprises a silicon modified polyolefin.

2. (Currently Amended) A composite article comprising a polyolefin layer, a tielayer, and a non-polyolefin, The composite article of claim 1, wherein said tie-layer comprises:

$$\frac{\xi}{\xi} = R_1 - Si(R)_{3-z} - R_2 - Si(R)_{3-z} - R_1 - X_1$$

wherein mereresents a polyolefin segment;

 $R_1$  independently for each occurrence represents an organic-or inorganic moiety or a bond;

R<sub>2</sub> independently for each occurrence represents an organic moiety, an inorganic moiety, or a bond;

R independently for each occurrence represents an organic or inorganic moiety;

X<sub>1</sub> independently for each occurrence represents <u>a moiety that is capable of bonding</u> to said non-polyolefin an organic or inorganic moiety; and

z represents the number of linkages between the  $Si(R)_{3-z}$  moieties, and is an integer from 1 to 3.

3. (Currently Amended) <u>A composite article comprising a polyolefin layer, a tie-layer, and a non-polyolefin, The composite article of claim-1, wherein said tie-layer silicon modified polyolefin comprises:</u>

$$\frac{\xi}{\xi} - R_1 - \left\{ \operatorname{Si}(R)_2 - R_1 \right\}_p \operatorname{Si}(R)_2 - R_1 - X_1$$

wherein one represents a polyolefin segment;

R<sub>1</sub> independently for each occurrence represents an organic or inorganic moiety or a bond;

R independently for each occurrence represents an organic or inorganic moiety;

X<sub>1</sub> independently for each occurrence represents a moiety that is capable of bonding to said non-polyolefin an organic or inorganic moiety; and

p is an integer from 0 to about 1000.

4. (Currently Amended) A composite article comprising a polyolefin layer, a tielayer, and a non-polyolefin, The composite article of claim 1, wherein said tie-layer silicon modified polyolefin comprises

$$\begin{cases} Si(R) & \longrightarrow R_1 & \longrightarrow X_1 \\ \end{cases}$$

wherein represents a polyolefin segment;

R<sub>1</sub> independently for each occurrence represents an organic <del>or inorganic moiety</del> or a bond;

R independently for each occurrence represents an organic or inorganic moiety; and

X<sub>1</sub> independently for each occurrence represents <u>a moiety that is capable of bonding</u> to said non-polyolefin an organic or inorganic moiety;

- 5. (Original) The composite article of claim 2, wherein for each occurrence, R is selected independently from the group consisting of H, alkyl, alkenyl, alkynl, hydroxyl, alkoxy, halogen, aralkyl, aryl, heterocyclyl, polycyclyl, carbocycles, and heteroatoms.
- 6. (Original)The composite article of claim 5, wherein R is -O-alkyl or O-H.

- (Original)The composite article of claim 2, wherein for each occurrence, R<sub>1</sub> and R<sub>2</sub> are selected independently from the group consisting of alkyl, alkenyl, and alkynyl, O-, alkoxy, aryl, heterocyclyl, polycyclyl, carbocycles, and a bond.
- 8. (Original)The composite article of claim 2, wherein R<sub>2</sub> for each occurrence independently represents an acetyl moiety, alkyl ether, arylether, -O-, or a bond.
- 9. (Original)The composite article of claim 8, wherein R is selected independently for each occurrence from the group consisting of H, alkyl, alkenyl, alkynl, hydroxyl, alkoxy, halogen, aralkyl, aryl, heterocyclyl, polycyclyl, carbocycles, and heteroatoms.
- 10. (Currently Amended) The composite article of claim 8, wherein R<sub>1</sub> is selected independently for each occurrence from the group consisting of alkyl, alkenyl, alkynyl, and alkoxy, and hydroxyl.
- 11. (Original) The composite article of claim 10, wherein z is 1.
- 12. (Original) The composite article of claim 10, wherein z is 2.
- 13. (Original) The composite article of claim 10, wherein z is 3.
- 14. (Canceled)
- 15. (Currently Amended) The composite article of claim  $\underline{2}$  14, wherein  $X_1$  comprises a vinyl, epoxy or amine moiety.
- 16. (Original) The composite article of claim 3, wherein for each occurrence, R is selected independently from the group consisting of H, alkyl, alkenyl, alkynl, hydroxyl, alkoxy, halogen, aralkyl, aryl, heterocyclyl, polycyclyl, carbocycles, and heteroatoms.
- 17. (Original) The composite article of claim 16, wherein R is -O-alkyl or -O-H.

- 18. (Original) The composite article of claim 3, wherein R<sub>1</sub> is selected independently, for each occurrence, from the group consisting of alkyl, alkenyl, and alkynyl, -O-, alkoxy, aryl, heterocyclyl, polycyclyl, carbocycles, and a bond.
- 19. (Original) The composite article of claim 3, wherein  $X_1$  represents at least one moiety that is capable of bonding to said non-polyolefin.
- 20. (Original) The composite article of claim 19, wherein  $X_1$  comprises a vinyl, epoxy or amine moiety.
- 21. (Original) The composite article of claim 4, wherein for each occurrence, R<sub>1</sub> is selected independently from the group consisting of alkyl, alkenyl, and alkynyl, -O-, alkoxy, aryl, heterocyclyl, polycyclyl, carbocycles, and a bond.
- 22. (Original) The composite article of claim 21, wherein  $X_1$  represents at least one moiety that is capable of bonding to said non-polyolefin.
- 23. (Original) The composite article of claim 22, wherein X<sub>1</sub> comprises a vinyl, epoxy or amine moiety.
- 24. (Currently Amended) A composite tube, comprising the composite article of claim 21.
- 25. (Currently Amended) A composite tube that comprises a polyolefin layer, and a composite layer comprising fibers disposed in a matrix, wherein the polyolefin layer is bonded to the composite layer through a tie-layer, wherein the tie-layer comprises a silicon moiety.

26-28. (Canceled)